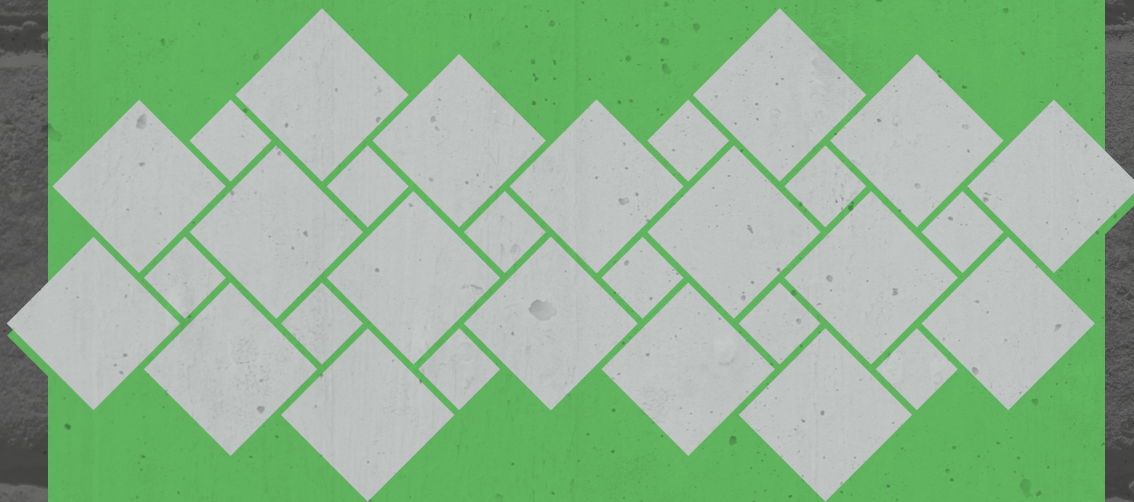


SECTION 2

UNDERSTANDING CONCRETE & MASONRY SUBSTRATES



CONCRETE MATERIALS CAN BE USED JUST ABOUT ANYWHERE

— from parking area pavers to roofing tiles — and they aren't always immediately recognizable. This section will help you to determine when a designer or builder has used a concrete product and help you to understand why they made that choice.

CONSTRUCTION METHODS

Here are some of the most common processes of preparing concrete to be used in construction.

CAST IN PLACE (CIP): Concrete is transported in an unhardened state and poured into forms at the job site.

CIP, known for its long-term durability and structural support, is found commonly in building foundations and basement walls. It is now also being used for above-grade walls, beams, columns and roofs.



TILT-UP CONCRETE:

Ready-mixed concrete is placed in horizontal forms at the construction site, cured and then tilted up to form walls.

Found most frequently in one-story commercial buildings such as warehouses, office buildings or big box stores, tilt-up construction offers an option that is economical and highly adaptable.



PRECAST CONCRETE: Products are molded in factories, mass produced, then transported to the job site.

Precast concrete can be found in shopping malls, warehouses, hotels and motels, airport terminals, stadiums, multi-family housing and any structure that would benefit from mass-produced materials made in a factory-controlled setting.



Terms Of The Trade

CURING: The maintenance of humidity and temperature of freshly placed concrete to assure satisfactory hydration of the cementitious materials and proper hardening of the concrete.

FLATWORK: Any poured surface that moves along a horizontal plane. Flatwork surfaces include patios, walkways, sidewalks, foundations, driveways and any other flat surface.

POROSITY: The ratio usually expressed as a percentage of the volume of voids in a material, to the total volume of a material, including the voids.

MYTH #2

Coatings bridge the porous surface of concrete, trapping moisture already present that seeks to escape through the surface and setting the coating up for failure.

FACT: Not necessarily. Some coatings can bridge porous surfaces, protecting concrete and masonry surfaces from water penetration. Newer concrete coating technologies are available that are highly permeable from the substrate side.

There are coatings that allow moisture vapor from within the concrete to escape, virtually eliminating blistering, peeling and delamination.

TYPES OF SUBSTRATES

Because concrete is such a versatile material, you will find that it takes many shapes. Below is a list of concrete products to look for when you are assessing coating options.

PAVERS

Affordable, visually appealing and available in a variety of sizes and finishes, concrete pavers (or paving stones) are a popular outdoor flooring option. Pavers are also used for driveways, access lanes, streets, plazas, shopping malls and many other horizontal surfaces.



CONCRETE MASONRY UNITS (CMU)

You'll find CMU in all types of low-rise buildings, from schools to industrial facilities. CMU are popular with architects because of their aesthetic appeal and their ability to meet demanding structural applications. The most common types of CMU are smooth block, split face and fluted block. Smooth block has a smooth finish and is available in a range of colors. Split face and fluted block have rougher textures and are used in decorative applications on higher-end buildings.



FIBER CEMENT SIDING

A material used to cover the exterior of a building; it offers a wood-like appearance and delivers greater durability than most other siding products. Made from cement, sand and cellulosic fibers, fiber cement siding holds paint longer than conventional wood siding and will not rot, buckle or warp when installed correctly.



PERVIOUS CONCRETE

A type of flatwork and one of the hottest topics in land development today, pervious concrete has a high porosity that allows water from precipitation and other sources to pass directly through, reducing the runoff from a site and allowing groundwater recharge. It can be found in parking areas, residential streets, pedestrian walkways, greenhouses and anywhere EPA regulations call for decreasing the amount of surface water runoff.



ROOF TILES

Concrete roof tiles usually last the lifetime of a building and are more economical than other roofing products on a life-cycle basis. They're available in a variety of colors and can look like traditional clay tiles, wood shakes, slate or stone.



SPLIT FACE BLOCK

This is very similar to a standard concrete block, but has a natural stone-like texture accomplished by molding two blocks face to face then splitting them apart, creating the coarse surface. You'll see this block most often used on exterior walls due to its appealing aesthetic.



STUCCO

Used as a surface finish, stucco is versatile, offers a low initial cost and requires minimal maintenance. It is used in a wide variety of commercial and residential structures in a range of colors.

